



The EcoSystem Indicator Partnership (ESIP): Fact Sheets

ESIP, formed as a committee of the Gulf of Maine Council on the Marine Environment, is made up of expert advisors and volunteers from 73 organizations in the U.S. and Canada who provide information for a web-based reporting system for marine ecosystem monitoring.

The first of eight planned fact sheets—four have been published already by ESIP—describes the partnership itself, lists the organizations represented by advisors and volunteers and explains how ESIP was established in 2006 and explains the meaning, use and method of choosing the indicators.

Subcommittees to ESIP selected 22 priority indicators to be used as a first step in assessing overall ecosystem health in the Gulf of Maine. Besides this first explanatory fact sheet, areas chosen as focus areas include the three already published—Aquatic Habitats, Climate Change and Aquaculture—as well as future fact sheets on Coastal Development, Contaminants, Eutrophication and Fisheries.

Each focus topic uses several of the 22 selected indicators, compares them to standards and targets in the states and provinces, and points out trends, or whether a cause and effect relationship exists.

This paper also explains how focus areas were chosen and how indicators for each focus areas interact with and affect the others. For instance, climate change indicators such as precipitation, directly influence aquatic habitats indicators, such as the extent of eelgrass, which the affects fisheries indicators such as production density.

Climate Change in the Gulf of Maine

This fact sheet points out that climate change will ultimately affect everything else in the Gulf of Maine—ecosystems, habitats and coastal communities.

Indicators used for climate change are sea level, air temperature and precipitation. Trends for precipitation by decade are mapped throughout the region, and the impact of extreme precipitation trends on wastewater systems are explained.

A chart shows the rate of change in sea levels around the Gulf over periods ranging from 20 to 109 years, depending on the data available in an area. The average for the Gulf was a 60-year reporting period registering a 2.0 mm rise in sea level annually.

Air temperature around the Gulf, affected by both global and regional influences, has been on the rise for decades in 13 out of 14 sites from 1-2 degreesF (0.5-1 degree C) per century, while a several showed increase of double those figures.

Experts contributing to the fact sheet say these regional warming trends of air temperature over the past century cannot be explained by natural climate variation alone, but must include greenhouse gases and sulfate aerosols in the global climate system.

Around the Gulf, annual average precipitation has increased by 5 percent during the past century, while globally, the average increase is 2 percent. Extreme precipitation events are on the increase. The fact sheet explains their effect on water management systems.